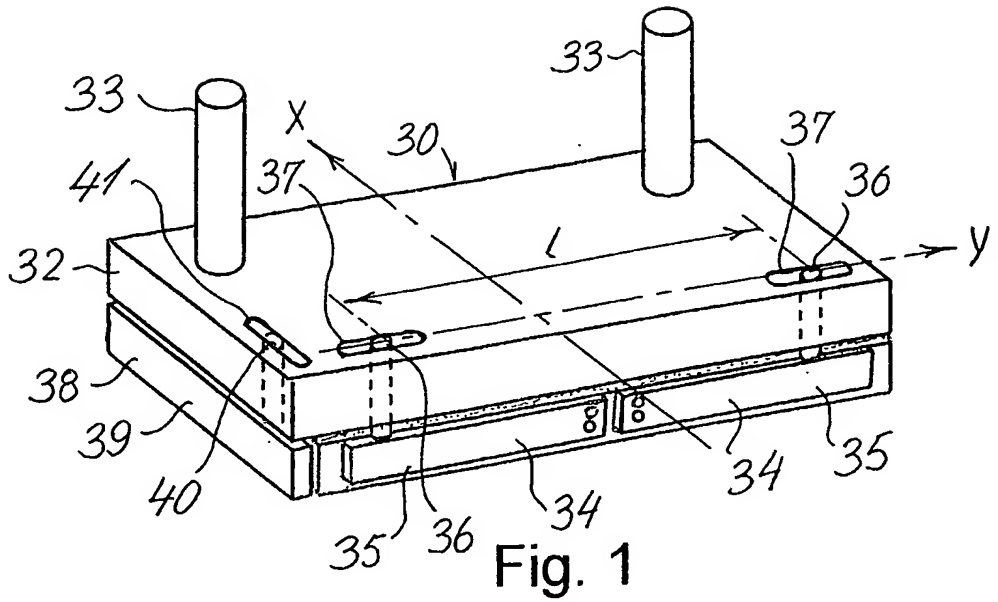
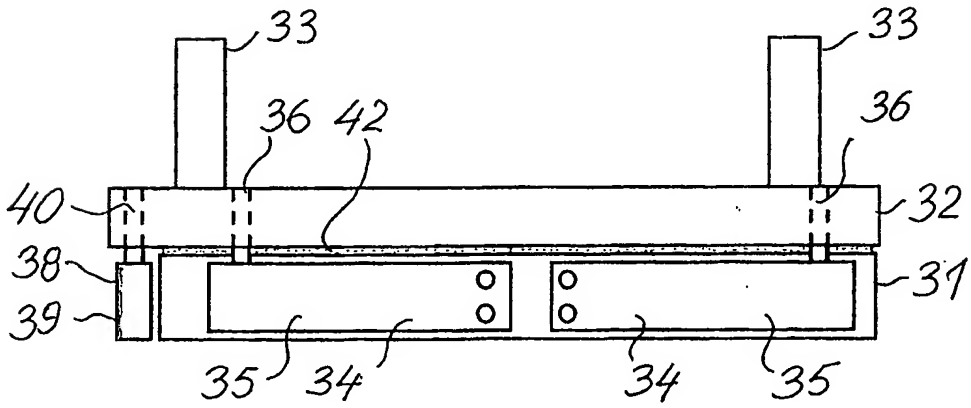

33
33
X
30
37
41
37
36
y
l
32
38
39
40
35
36
34
34
35

Fig. 1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34
35

Fig. 2

Fig. 3

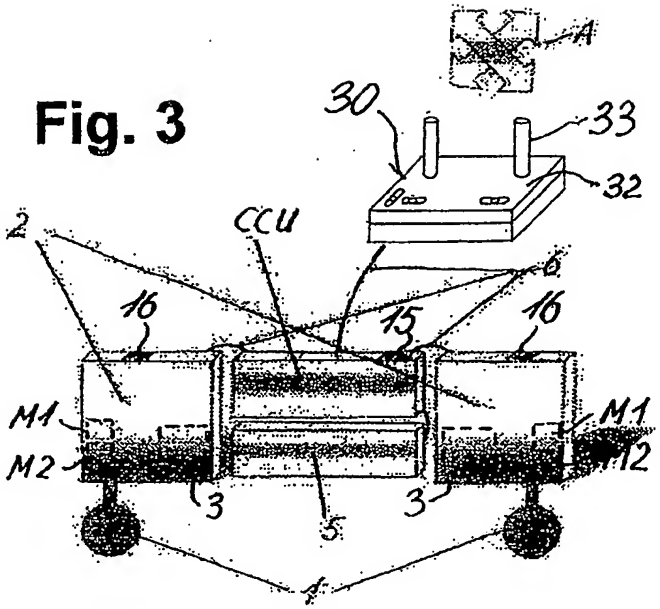
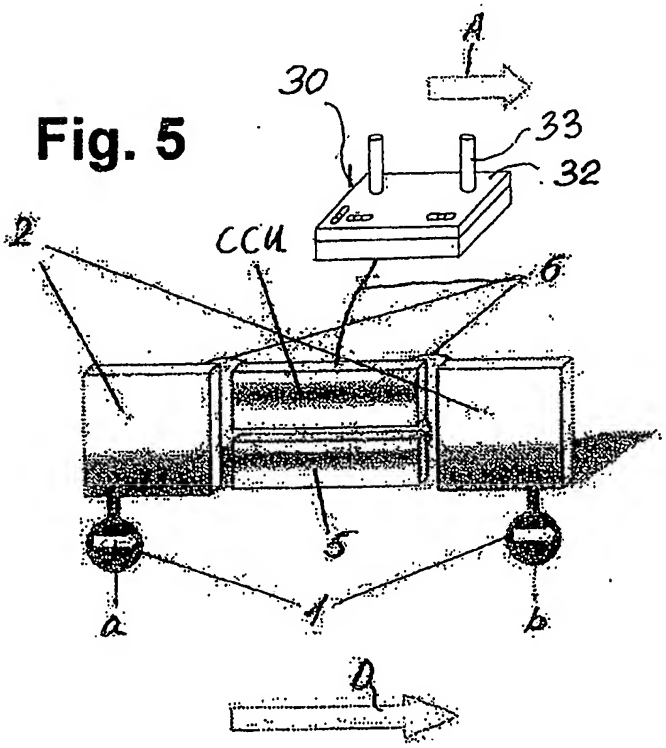


Fig. 5



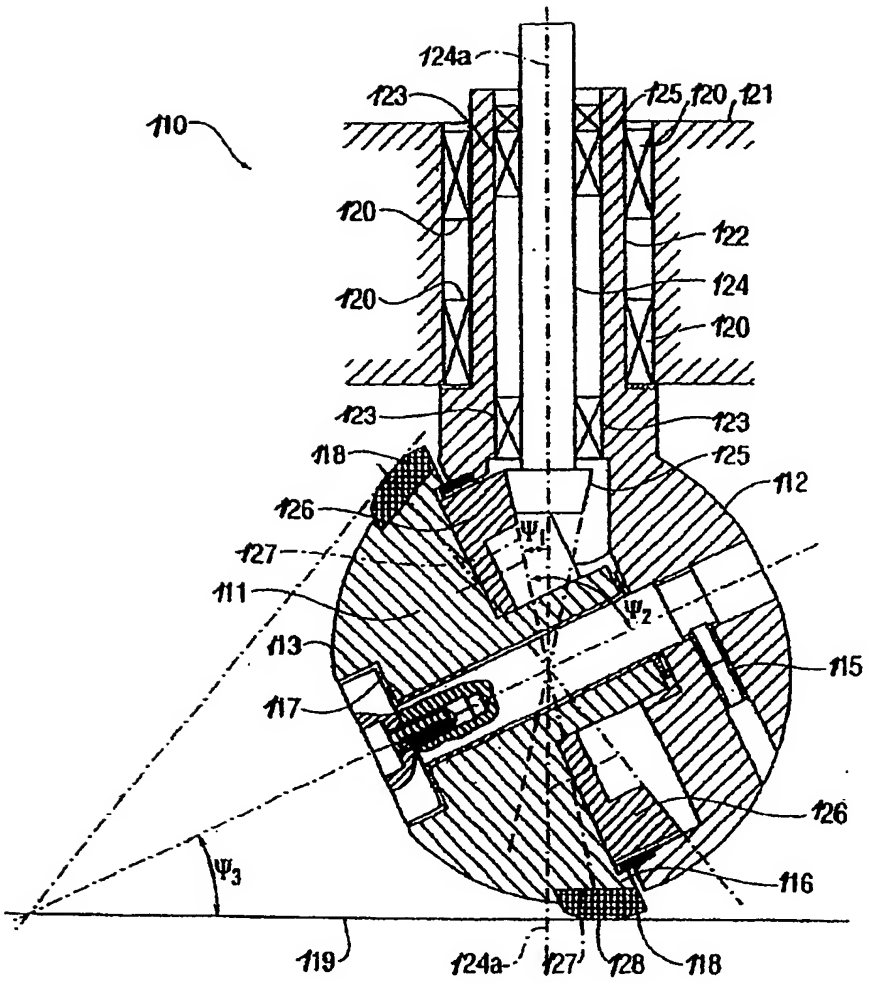

124a
123
125
120
121
110
120
122
120
124
120
123
123
118
125
112
126
127
111
113
115
117
126
116
119
124a
127
128
118

Fig. 4

Fig. 6

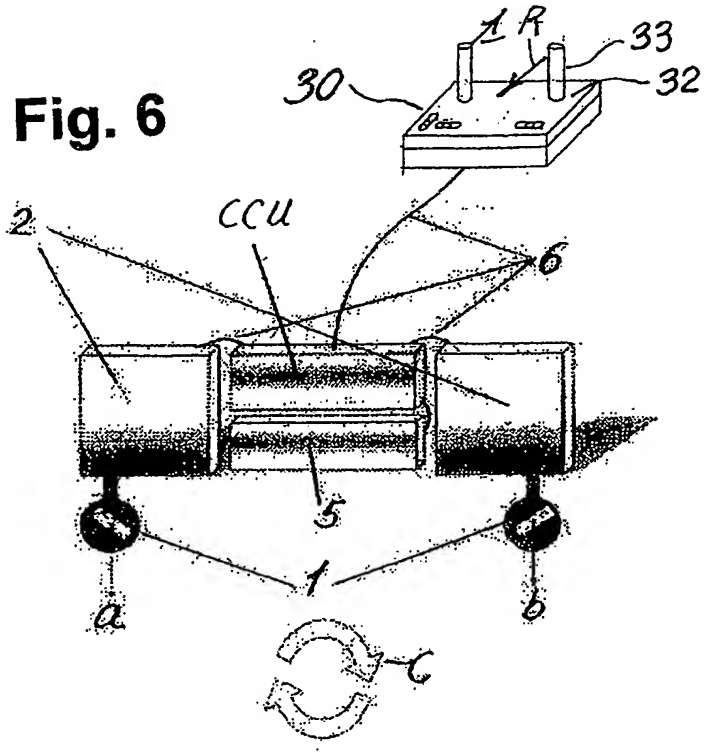


Fig. 7

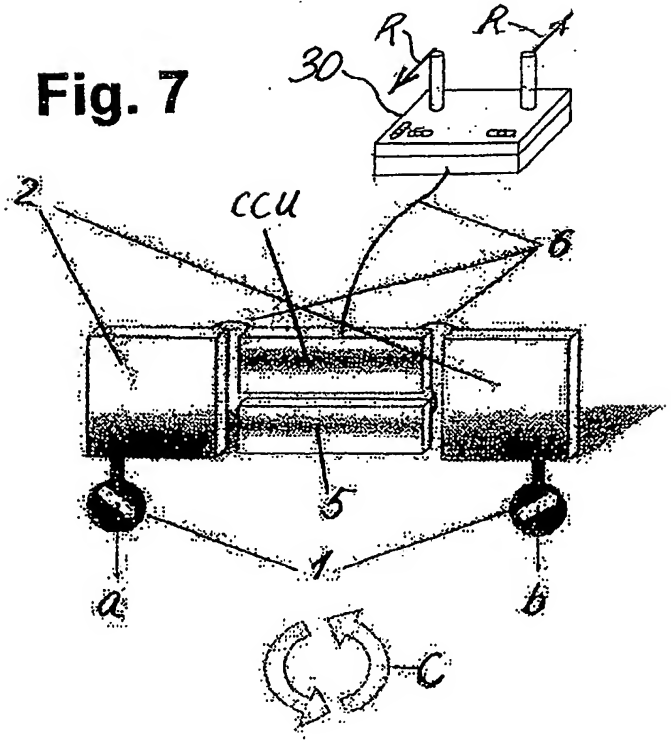


Fig. 8

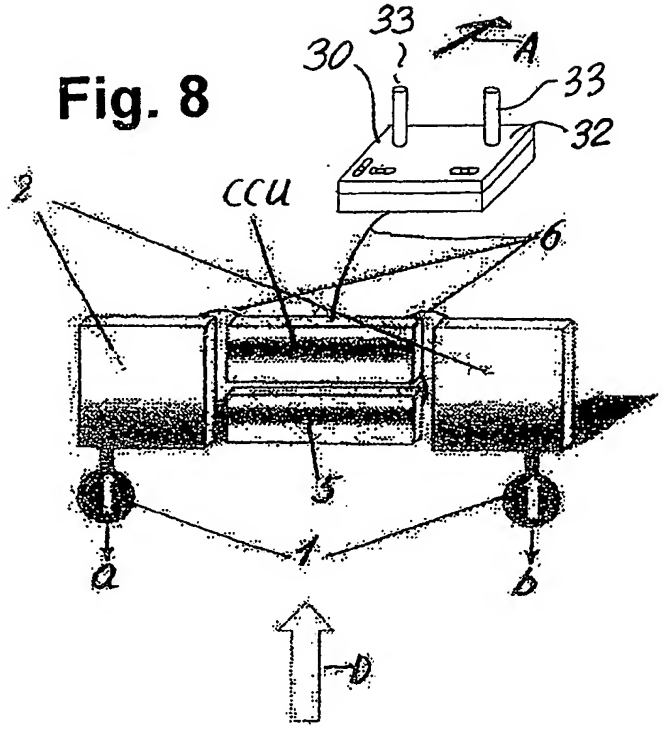


Fig. 9

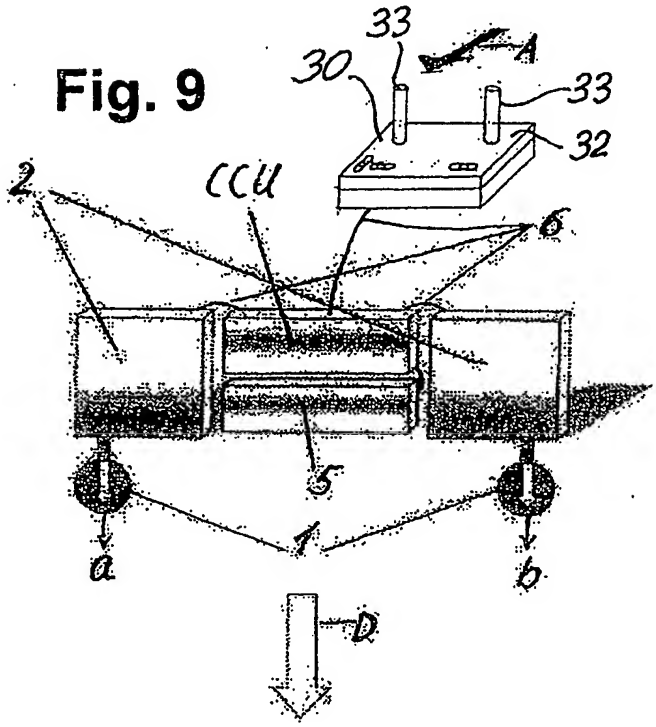
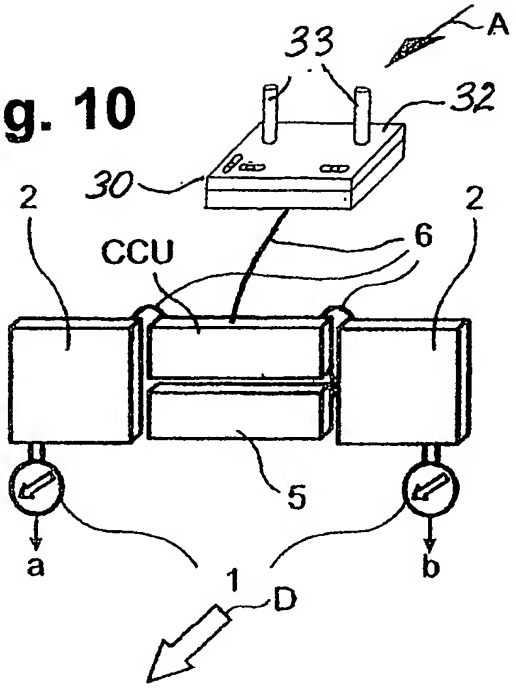


Fig. 10



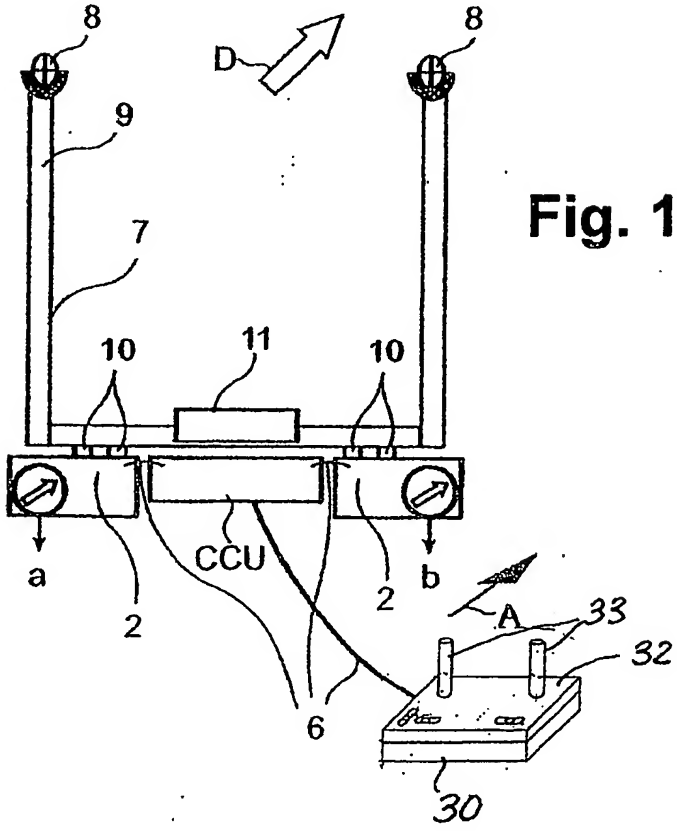


Fig. 11

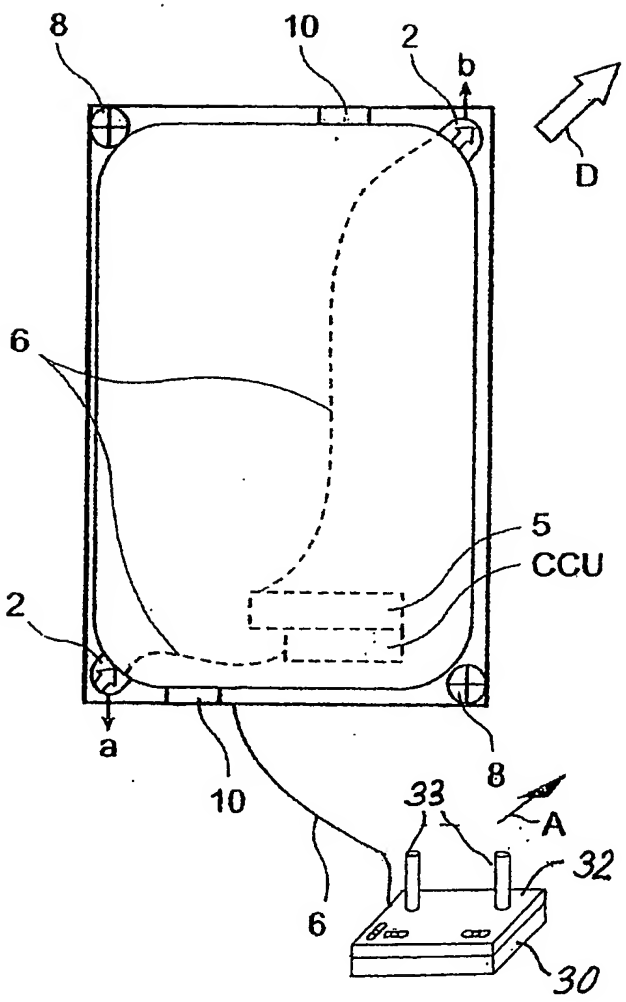


Fig. 12

Fig. 13

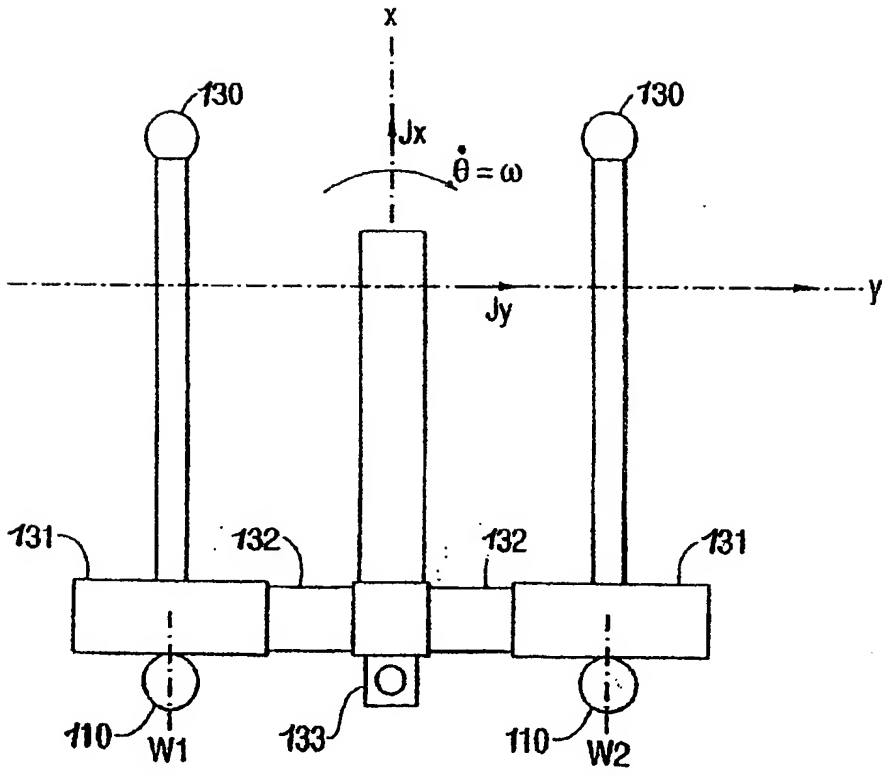
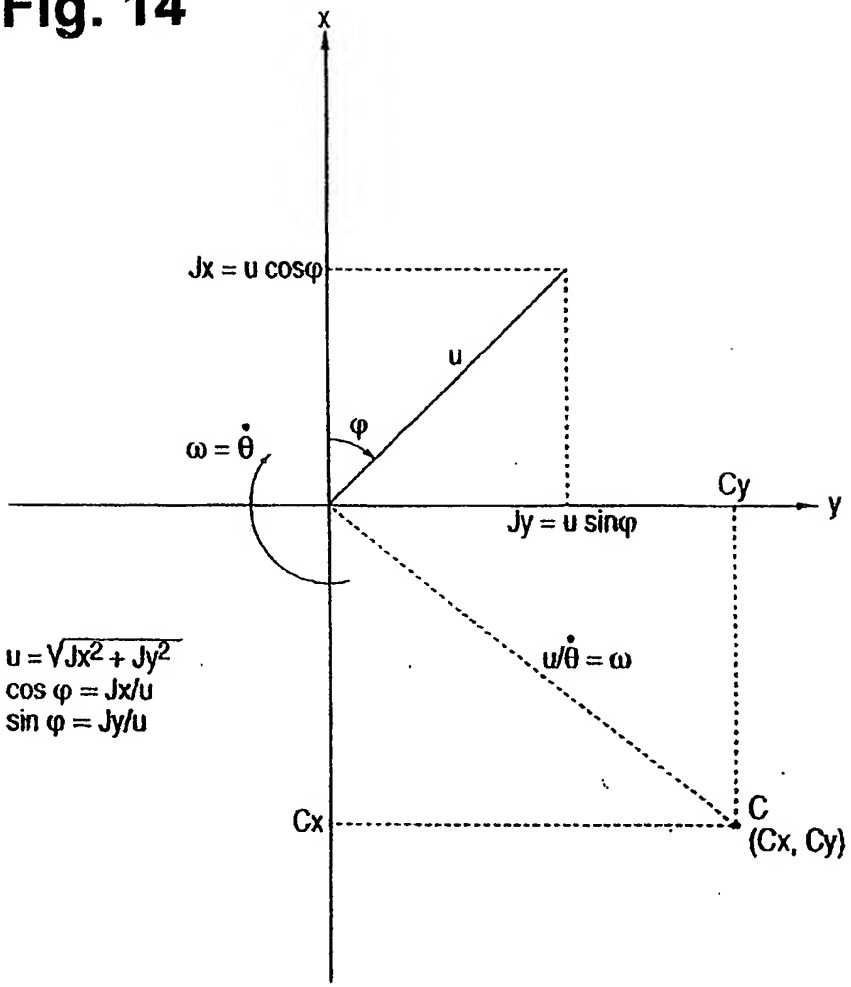

x
130
130
Jx
$\dot{\theta} = \omega$
y
Jy
131
132
132
131
110
W1
133
110
W2

Fig. 14



$$Cx = -\frac{u}{\dot{\theta}} \sin\varphi = Jy/\dot{\theta}$$

$$Cy = \frac{u}{\dot{\theta}} \cos\varphi = Jx/\dot{\theta}$$

} CENTRE OF ROTATION

Fig. 15

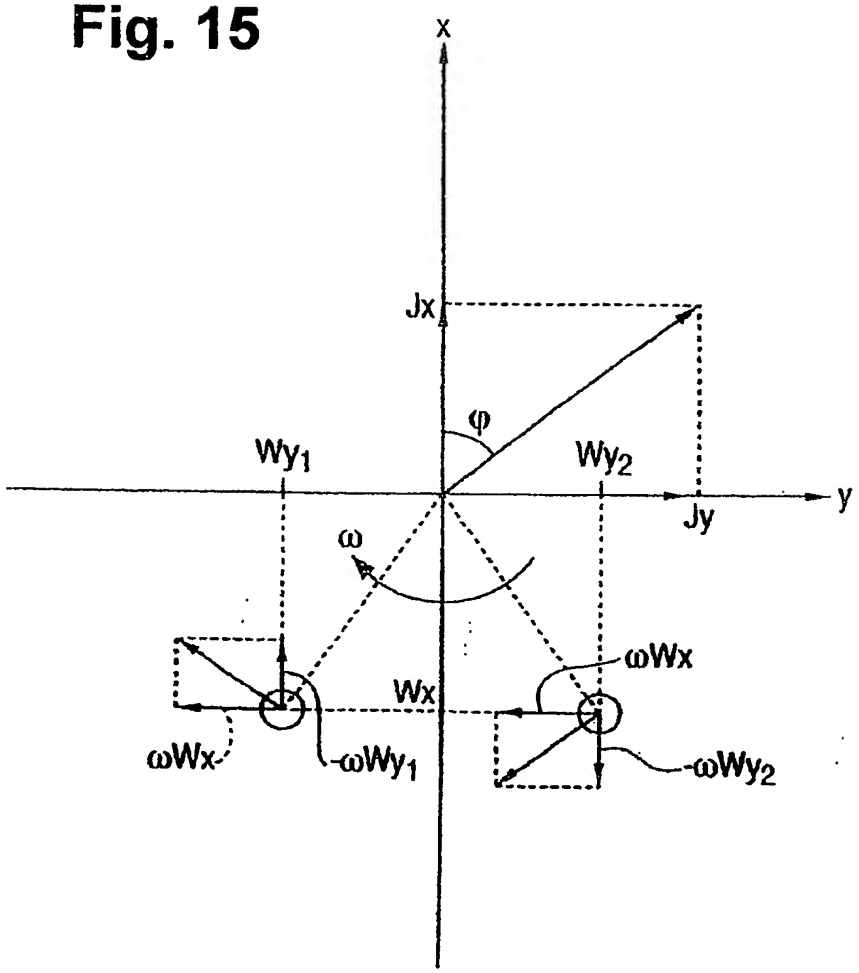
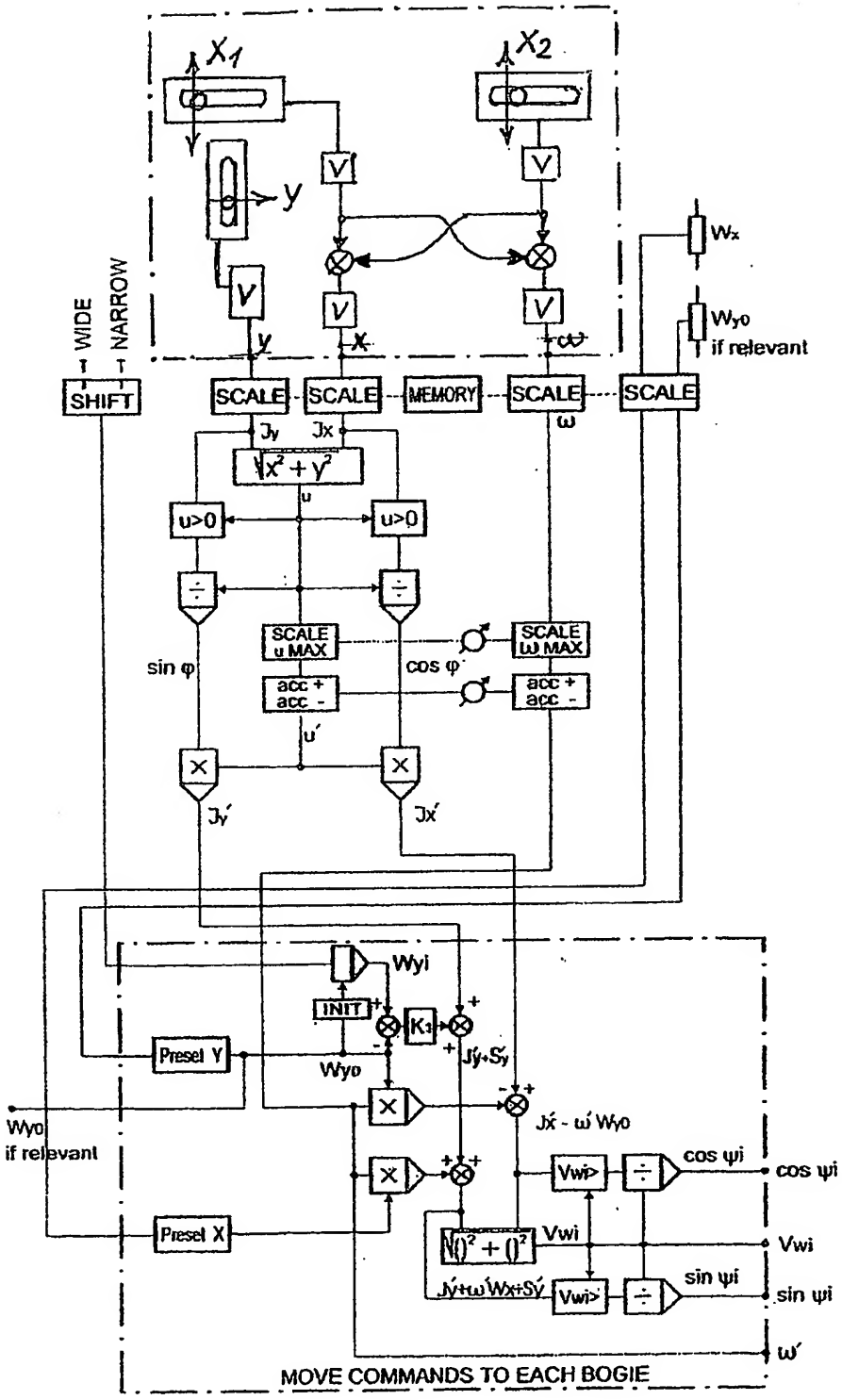


Fig. 16


X1
X2
y
V
Wx
Wyo
if relevant
WIDE
NARROW
SHIFT
SCALE
SCALE
MEMORY
SCALE
SCALE
ω
Jy
Jx
√(x² + y²)
u
u>0
u>0
SCALE u MAX
SCALE ω MAX
sin φ
cos φ
acc +
acc -
acc +
acc -
u´
Jy´
Jx´
Wyi
INIT
K1
Preset Y
Wyo
Jý+Sý
Wyo
if relevant
Jx́ - ώ Wyo
cos ψi
Vwi
Preset X
Vwi
Jý+ώWx+Sý
sin ψi
ω´
MOVE COMMANDS TO EACH BOGIE

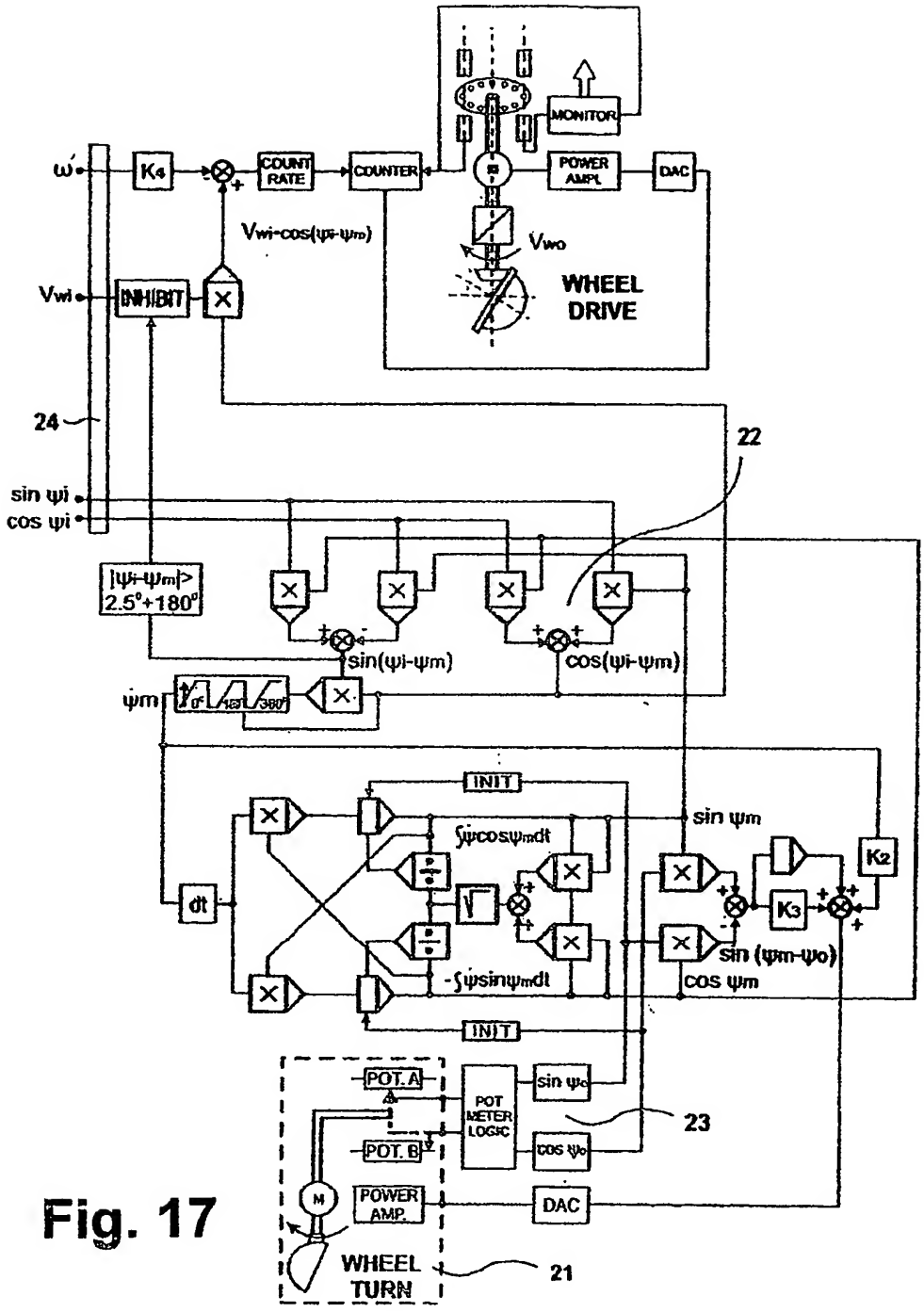

MONITOR
ω
K4
COUNT RATE
COUNTER
POWER AMPL
DAC
Vwi-cos(ψi-ψm)
Vwo
Vwi
INHIBIT
WHEEL DRIVE
24
22
sin ψi
cos ψi
|ψi-ψm|> 2.5°+180°
sin(ψi-ψm)
cos(ψi-ψm)
ψm
INIT
sin ψm
∫ψcosψmdt
dt
K2
K3
sin (ψm-ψo)
cos ψm
-∫ψsinψmdt
INIT
POT. A
POT. B
POT METER LOGIC
sin ψo
cos ψo
23
M
POWER AMP.
DAC
WHEEL TURN
21

Fig. 17